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ABSTRACT:

Purpose: To compare the patient groups and outcome following treatment of symptomatic chronic mesenteric ischemia using percutaneous angioplasty/stenting (PAS) or open surgical reconstruction (OS).

Methods: Over a 9-year period, 40 patients (23 women, 17 men) presenting with atherosclerotic occlusive (ASO) disease involving the visceral arteries underwent PAS (18 patients; 20 vessels treated) or OS (22 patients; 35 vessels treated). Patient demographics, extent of visceral artery revascularization, and procedure outcome were compared (χ^2 , t-test, or life-table analysis) between the two treatment groups.

Results: The PAS and OS patient groups had similar ($p>0.1$) duration of symptoms, weight loss, pre-operative serum albumin, and ASO risk factors. Patients selected for PAS were older (68 versus 59.5 years, $p=0.03$) and had more advanced active cardiac disease. Endovascular intervention involved balloon angioplasty and stenting of only one artery in all but two patients (SMA 9/18, 50%; celiac 6/18, 33%; IMA 1/18, 6%; SMA & celiac 2/18, 11%), while the majority (13/22, 59%) of OS patients had 2-vessel revascularization by bypass alone ($n=8$), bypass & endarterectomy ($n=3$), or endarterectomy alone ($n=2$). 30-day procedural failure (death due to multisystem organ failure, vessel re-intervention) was similar in the PAS (mortality 12% [2/18], PTA site stenosis, 1/18) and OS (mortality 9% [2/22], vessel occlusion 0/22) groups. Mean duration of ICU care/hospitalization was higher ($p<0.01$) for OS (8/24 days) patients than PAS (1.5/6 days) patients and related to intestinal resection (4 patients) and slower return of GI function, but overall morbidity (wound/PTA site, cardiac, pulmonary, renal) was comparable (PAS, 44%; OS, 45%). Overall survival at 3 years was similar (OS, 88%; PAS, 76%) and no patient required late gut resection for ischemia. Primary patency @ 14 months (No. of vessels with $<50\%$ stenosis/No. of vessels) assessed by visceral duplex/angiography was 51% for PTA- versus 82% for surgical-treated patients. During follow-up, more surviving PAS patients (5 of 16) required intervention for recurrent symptoms or asymptomatic stenosis compared to OS (2 of 20) patients. Six of 7 re-interventions involved PTA of a stent or an additional visceral artery. With re-intervention, all patients became symptom free.

Conclusions: Treatment of chronic mesenteric ischemia by endovascular or standard surgical revascularization produced similar outcomes, despite differences in patient age, severity of gut ischemia, and need for re-intervention. Endovascular treatment should be limited to high-risk patients in whom single-vessel PTA restores gut blood flow. Surveillance after intervention is recommended since one-quarter (7 of 36) of patients developed recurrent symptoms or asymptomatic re-stenosis – the majority of which were amenable to endovascular treatment.